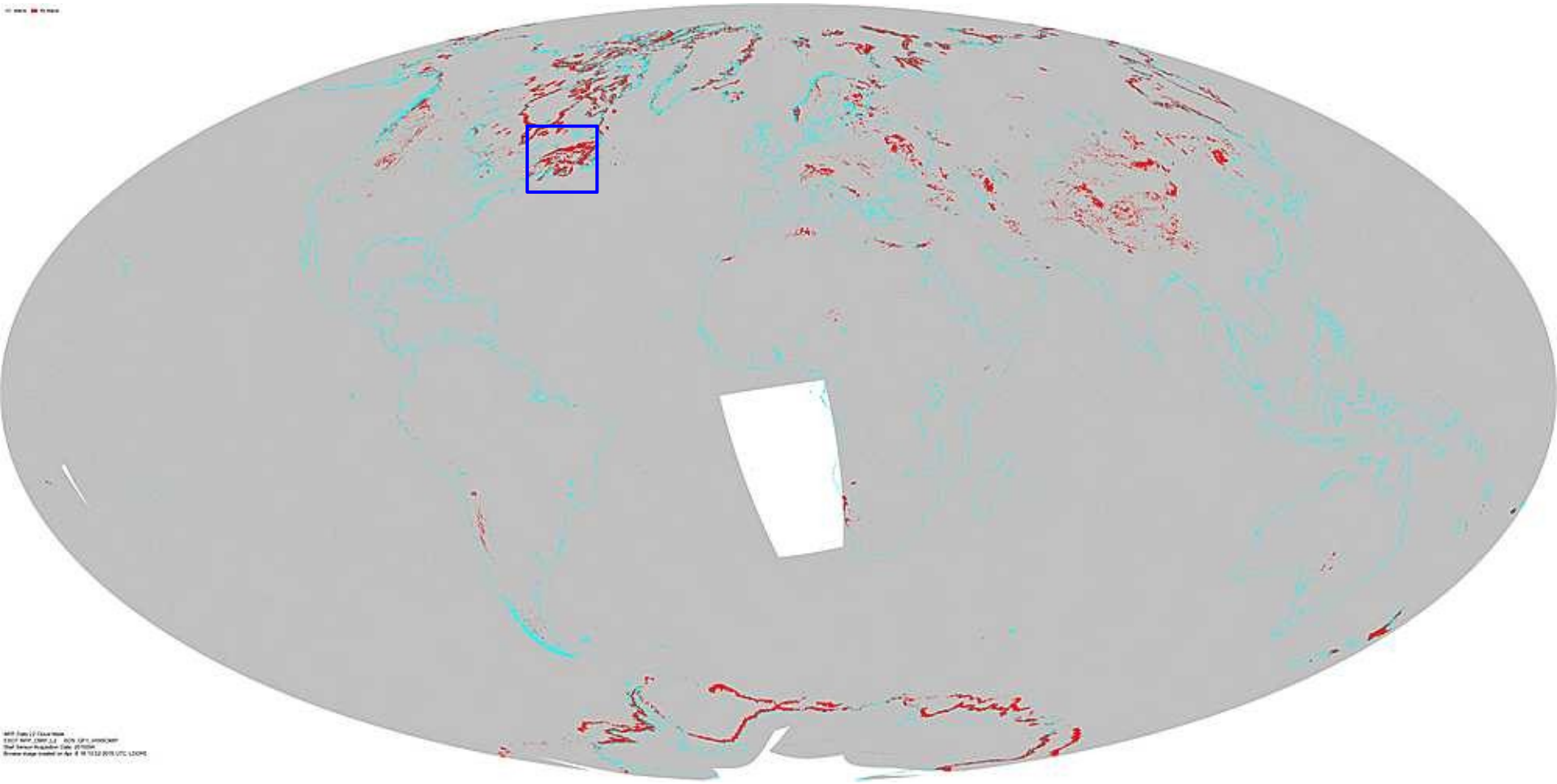
MX8.8 SIPS Integration test of L2 CMIP: Cloud Mask

Comparison : AS 3000 (IDPS), 3001(LSIPS), AS1146(Mx8.8 test)

Date Reviewed: 04.24.15

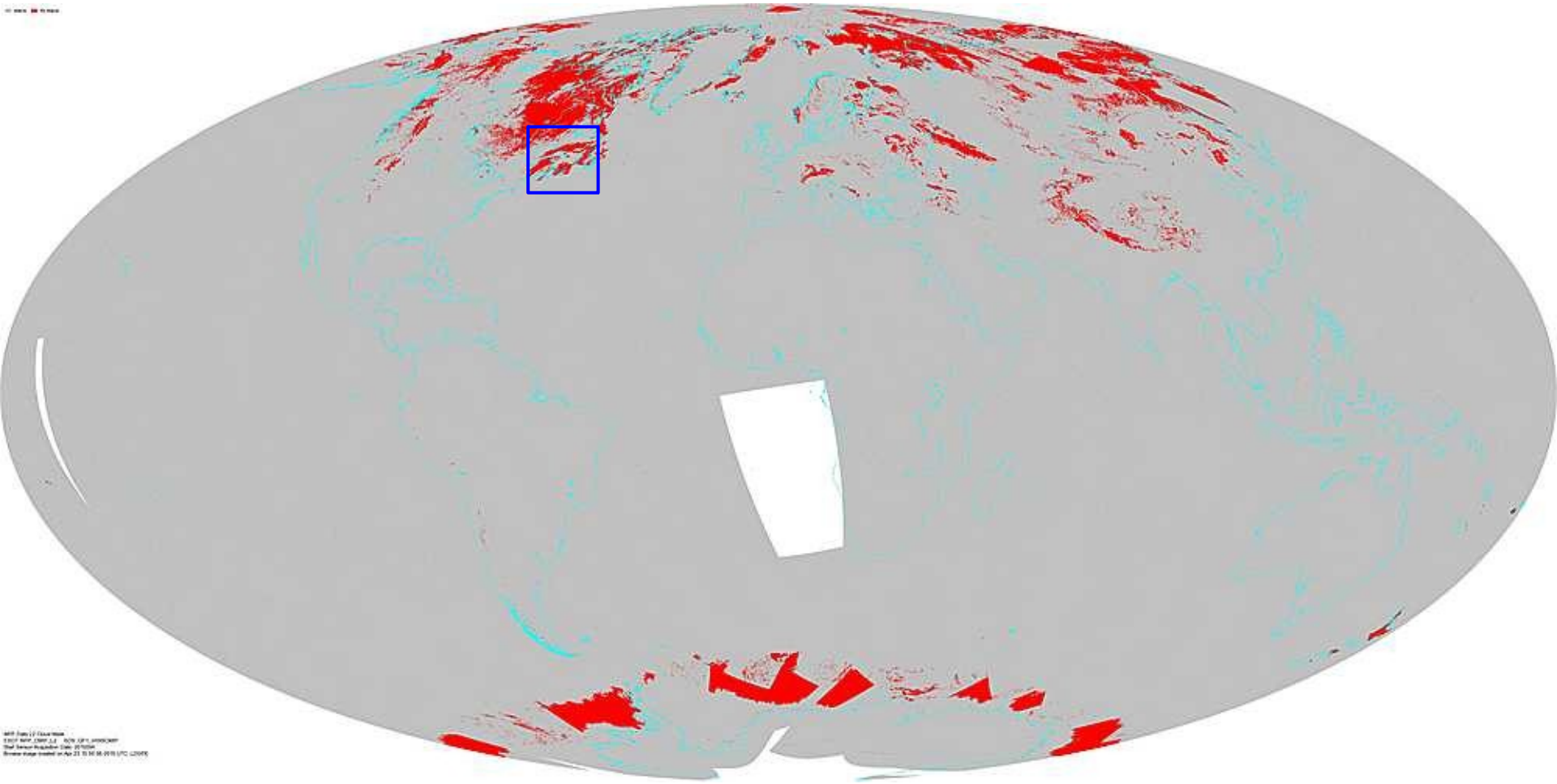
LDOPE

Forward processing Cloud Mask difference APU: 2015.094 : AS 3000 vs 3001

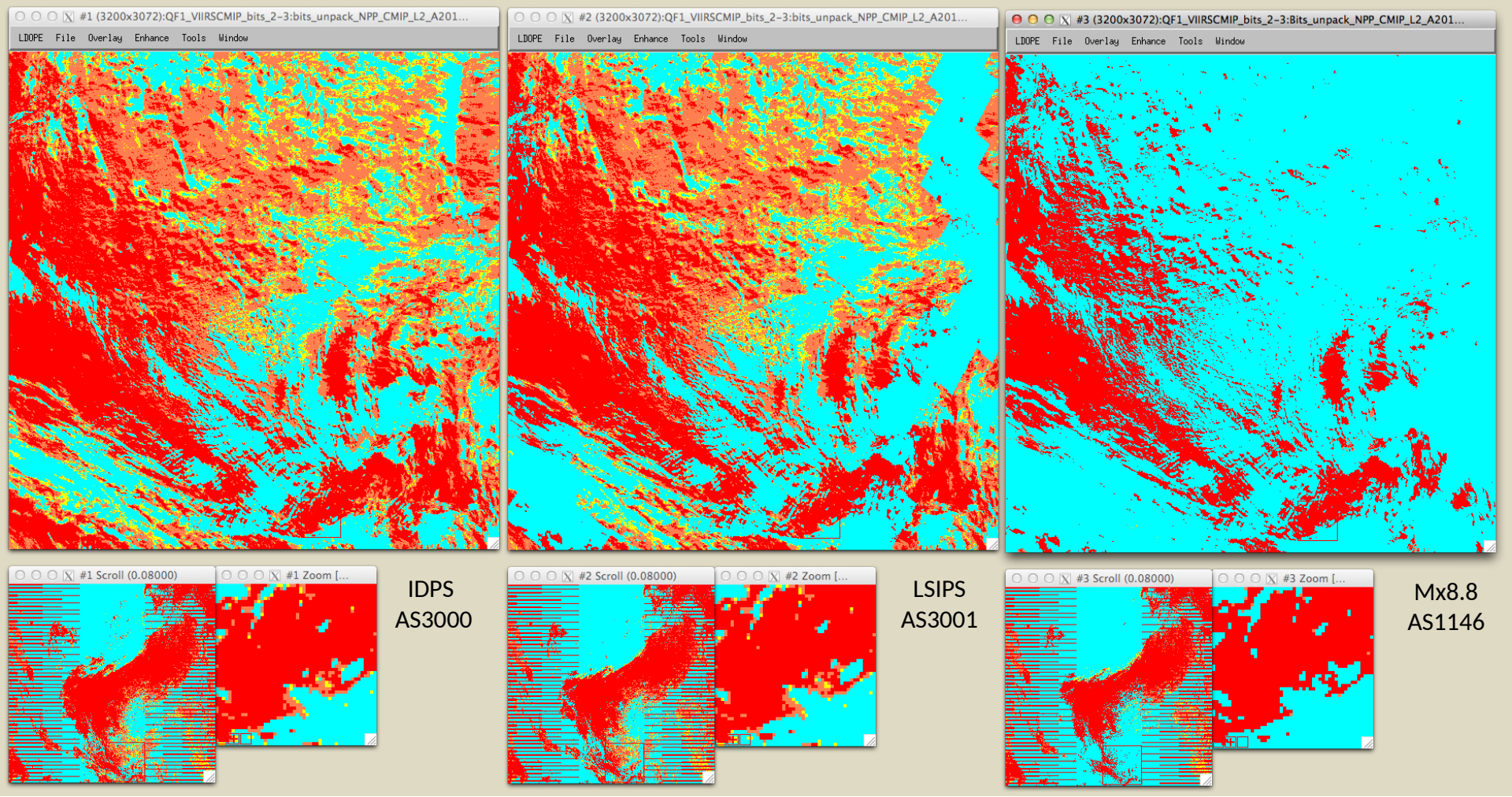


- NPP_CMIP_L2, day 2015094 (04/04/15), QF1, R-DIFF (IDPS AS 3000 vs SIPS AS 3001)
- Nominal differences were observed in the forward processing APU Cloud Mask.
- Review of QF1 Bits focused on granule 1710 (Eeastern North America, Canada, Blue Box.

Differences in Cloud Mask APU: 2015.094 Test Mx8.8 (AS1146) vs IDPS (AS 3000)



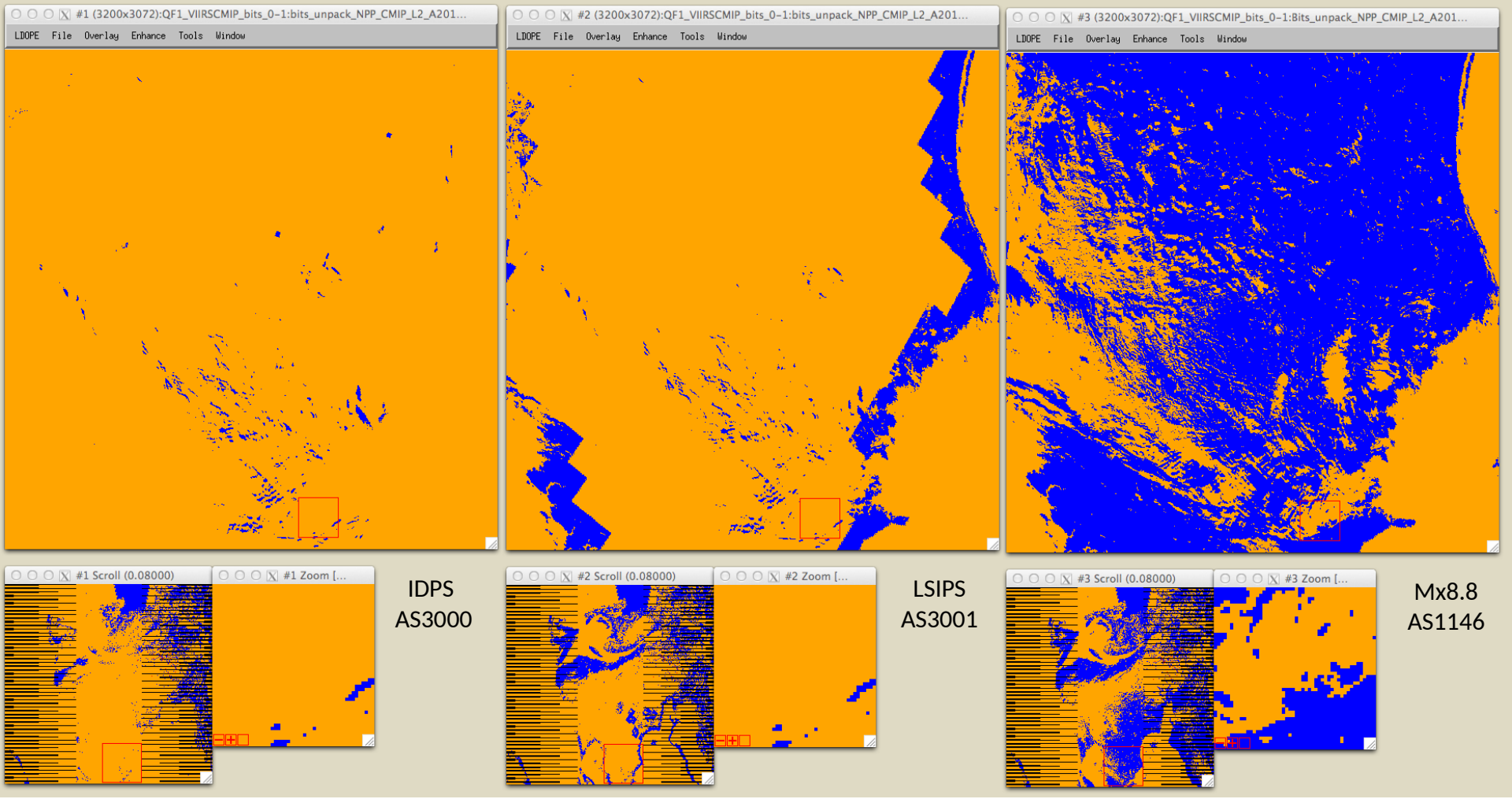
- NPP_CMIP_L2, day 2015094 (04/04/15), QF1, R-DIFF (IDPS AS 3000 vs MX8.8 test AS 1146)
- Large global differences were observed in the APU Cloud Mask when the MX8.8 test archive 1146 was compared with the forward processing IDPS AS 3000.



- The Cloud Detection Results & Confidence Indicator: Bit 2-3:

Confident Cloudy	Confident Clear
Probably Cloudy	Probably Clear
Not Retrieved	

- Slight differences observed in comparison of AS 3000 (IDPS) and AS 3001(LSIPS).
- Larger differences observed when Mx8.8 test AS 1146 is compared to AS3000.

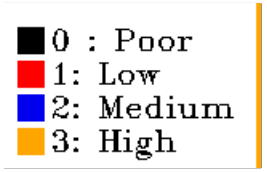


NPP_CMIP_L2.A2015094.1710.AGG_03000.2015095022214.hdf

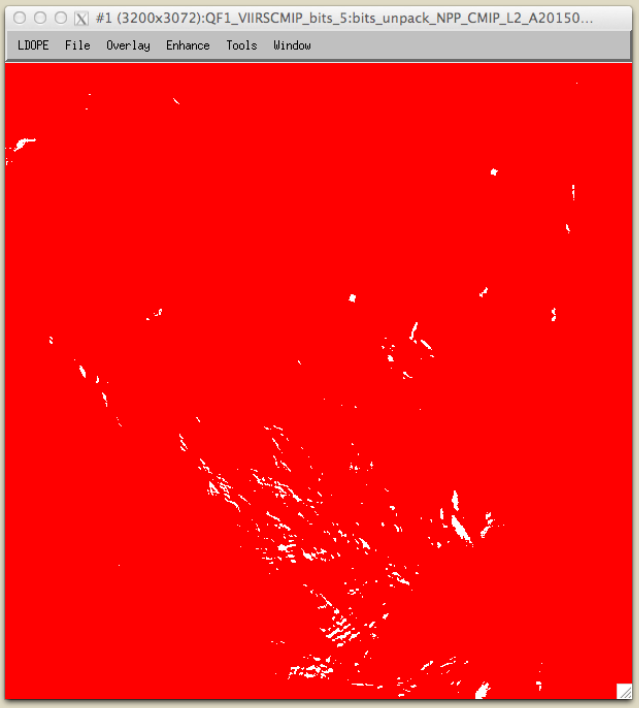
NPP_CMIP_L2.A2015094.1710.P1_03001.2015095072646.hdf

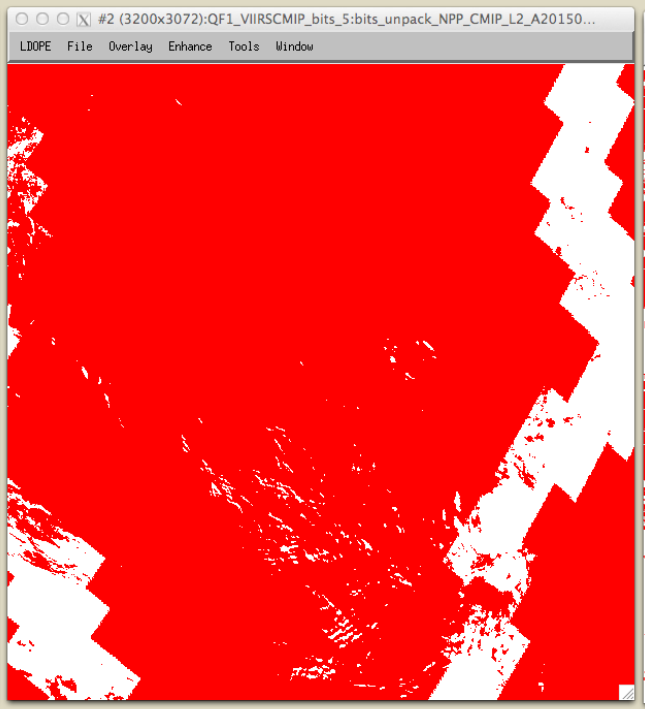
NPP_CMIP_L2.A2015094.1710.P1_01146.2015112183736.hdf

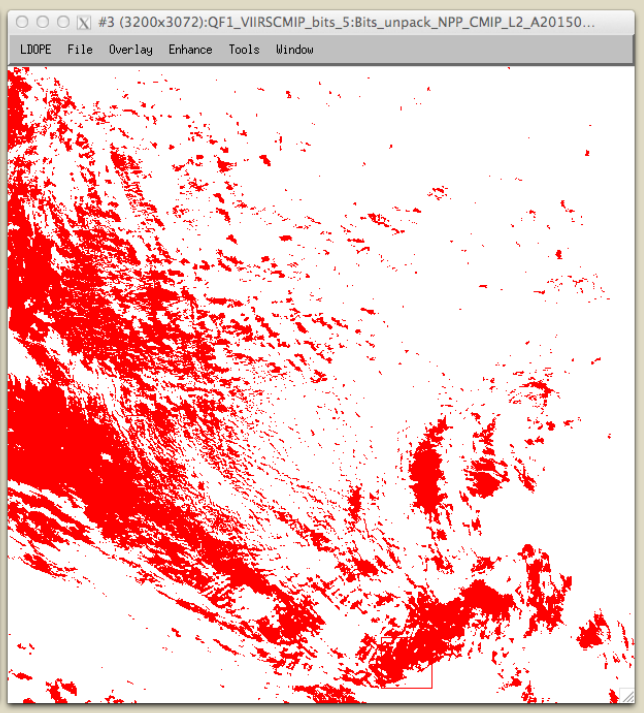
- The Cloud Mask Quality Bit 0-1:

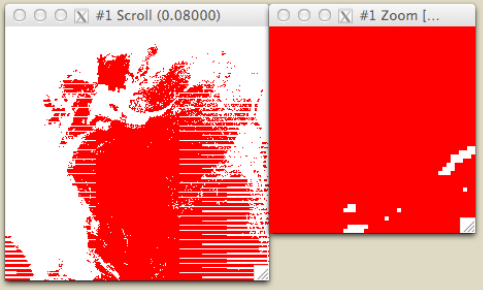


- Test AS 1146 shows large differences in Cloud mask Quality bit when compared to both AS 3000 and 3001.

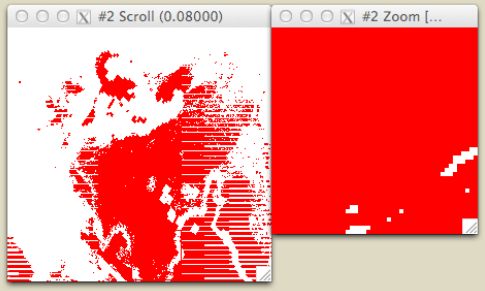




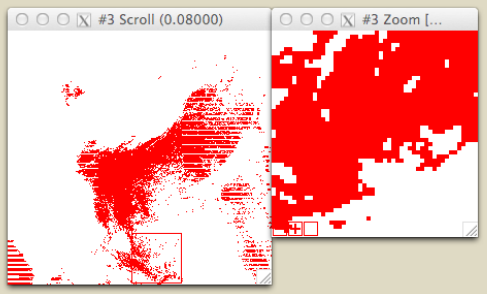




IDPS
AS3000



LSIPS
AS3001



Mx8.8
AS1146

NPP_CMIP_L2.A2015094.1710.AGG_03000.2015095022214.hdf

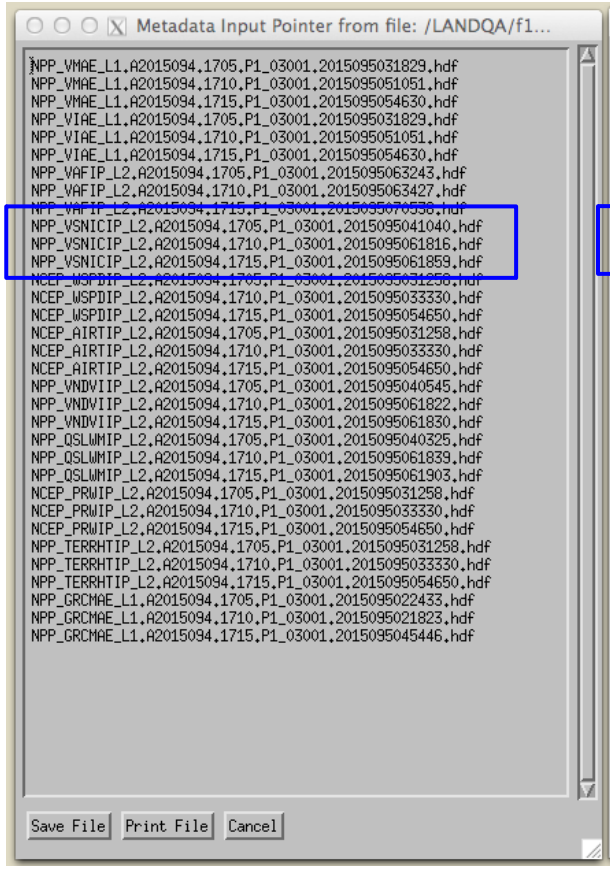
NPP_CMIP_L2.A2015094.1710.P1_03001.2015095072646.hdf

NPP_CMIP_L2.A2015094.1710.P1_01146.2015112183736.hdf

- Snow / Ice Surface flag:
  - Bit 5:
    - Red =1 (Snow / Ice)
    - White = 0 (No Snow)
- Large differences were observed in the Snow / Ice bit, with the Mx8.8 Test AS1146 reporting less snow / ice than IDPS or land SIPS.

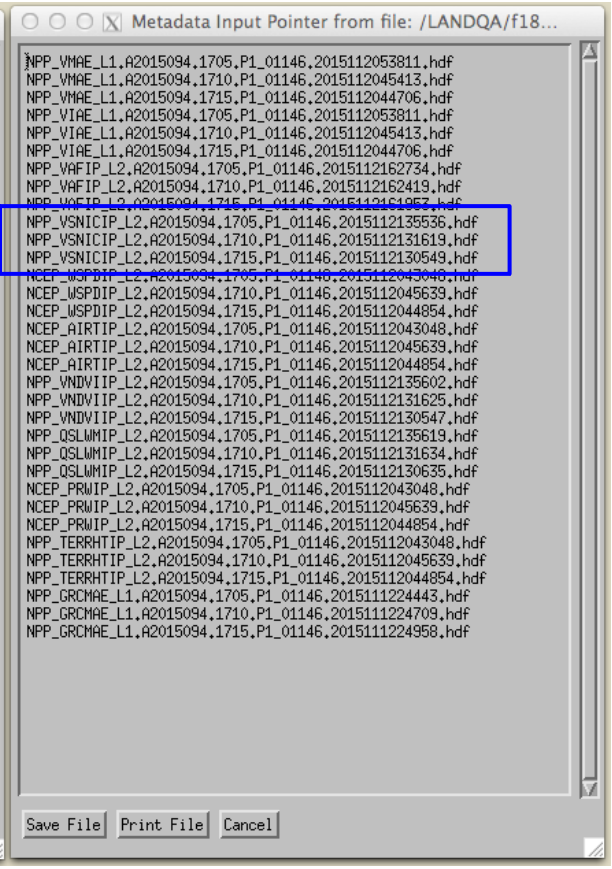
Review of NPP_CMIP_L2 Input Pointers

- NPP_CMIP_L2 Input Pointers
  - Up stream differences were observed in the input NPP_VSNICIP_L2.
  - The next slide reviews the differences found in NPP_VSNICIP_L2.



LSIPS
AS3001

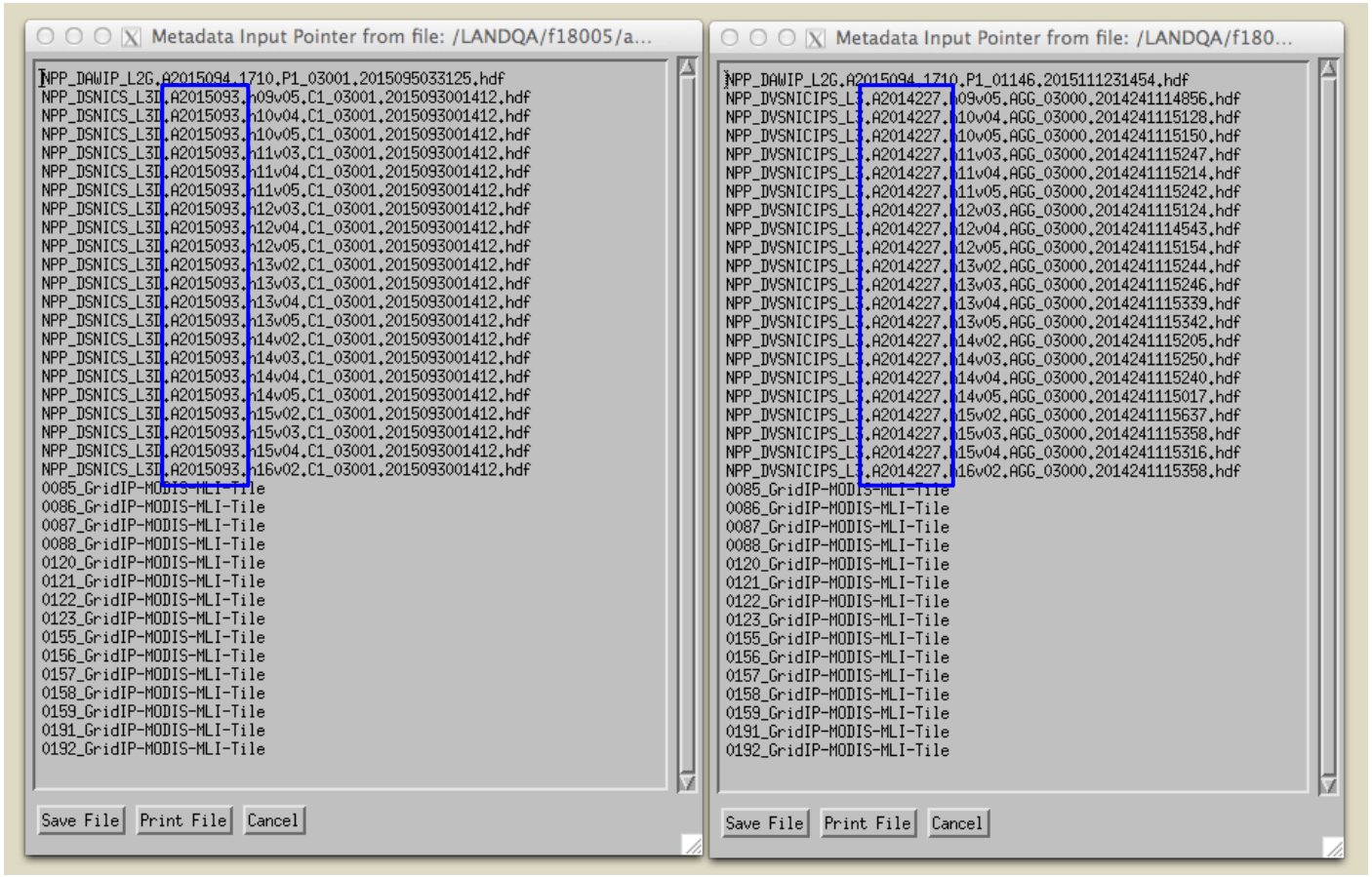
NPP_CMIP_L2.A2015094.1710.P1_03001.2015095072646.hdf



Mx8.8
AS1146

NPP_CMIP_L2.A2015094.1710.P1_01146.2015112183736.hdf

Review of NPP_VSNICIP_L2 Input Pointers



LSIPS
AS3001

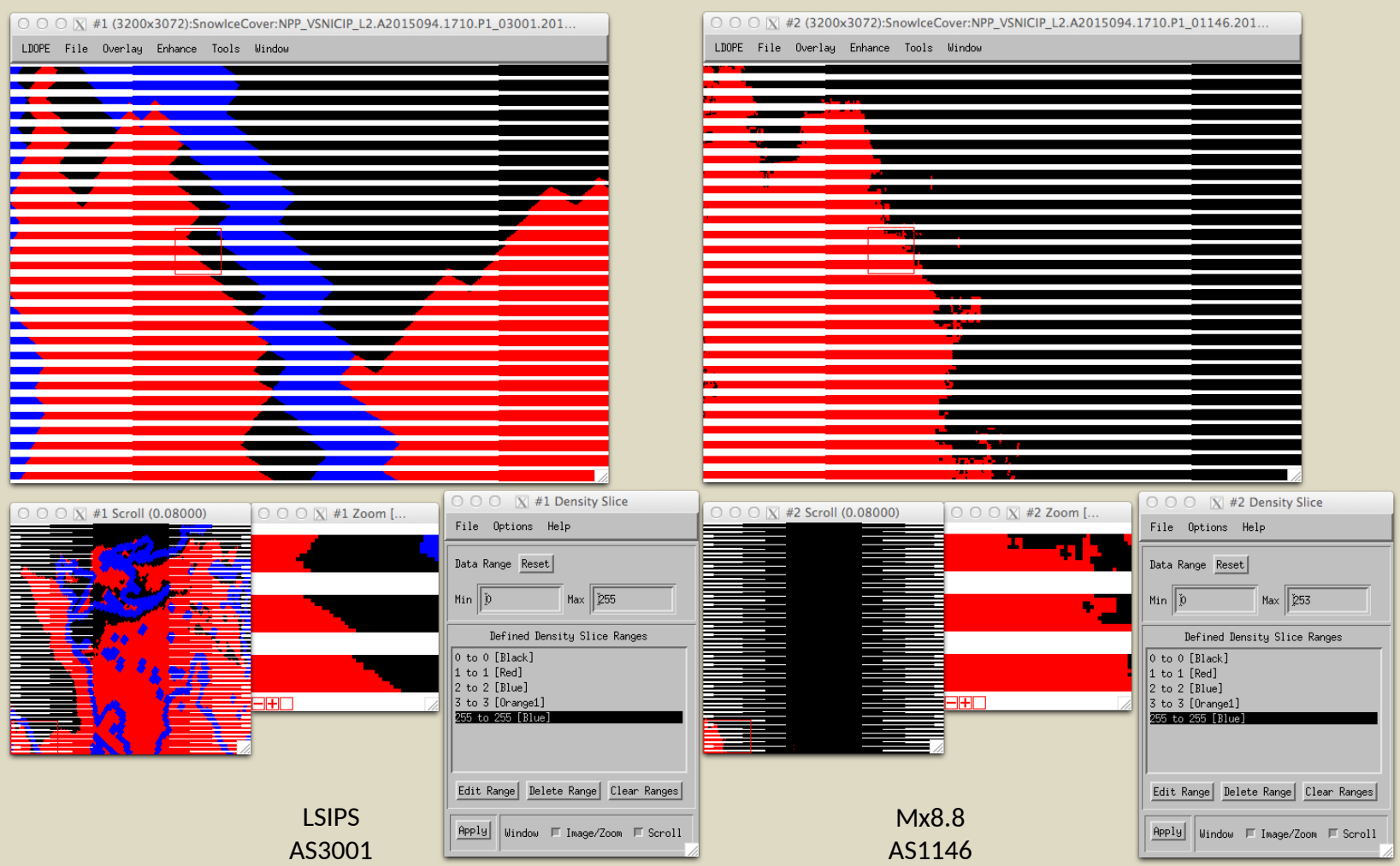
NPP_VSNICIP_L2.A2015094.1710.P1_03001.2015095061816.hdf

Mx8.8
AS1146

NPP_VSNICIP_L2.A2015094.1710.P1_01146.2015112131619.hdf

- snow-ice input (granulated NISE) used by the Cloud Mask in this test (AS 1146) is from the incorrect date.
  - It should have used the NISE data from day 2015093, but instead it is using the data from day 2014227.
  - All the L3 snow ice is from day 2014227 – this is tiled version of the global NISE data

Differences between the NPP_VSNICIP_L2 Input Pointers



NPP_VSNICIP_L2.A2015094.1710.P1_03001.2015095061816.hdf

NPP_VSNICIP_L2.A2015094.1710.P1_01146.2015112131619.hdf

- Snow-ice input (granulated NISE) used by the Cloud Mask in this test (AS 1146) shows significant differences when compared to AS3001, Snow / Ice Cover.

Rerun
MX8.8 SIPS Integration test of L2 CMIP: Cloud Mask

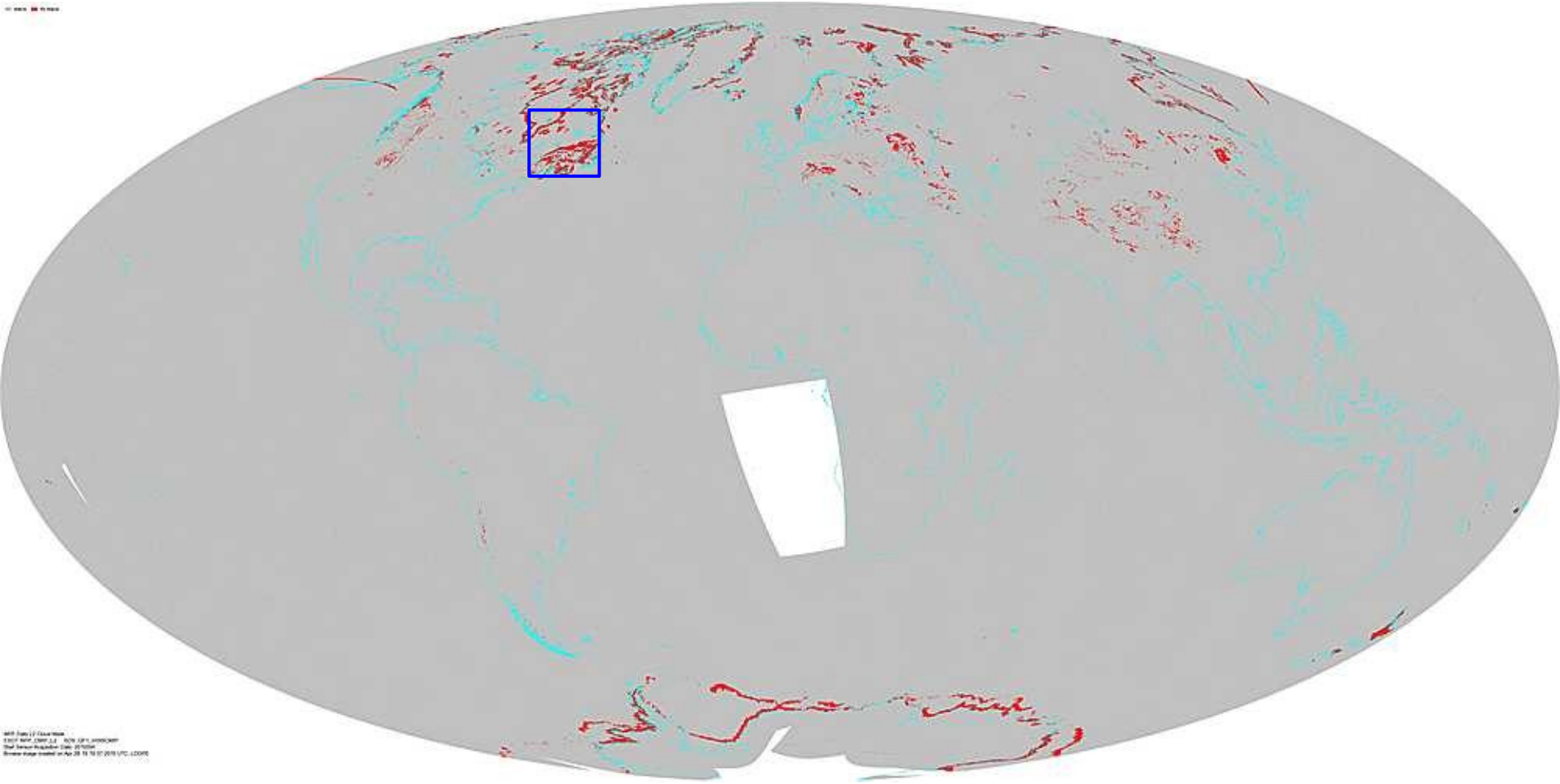
Comparison : AS 3000 (IDPS), 3001(LSIPS), AS1146(Mx8.8 test)

- Corrected Snow-ice input (granulated NISE) implemented in Cloud Mask test (AS 1146)

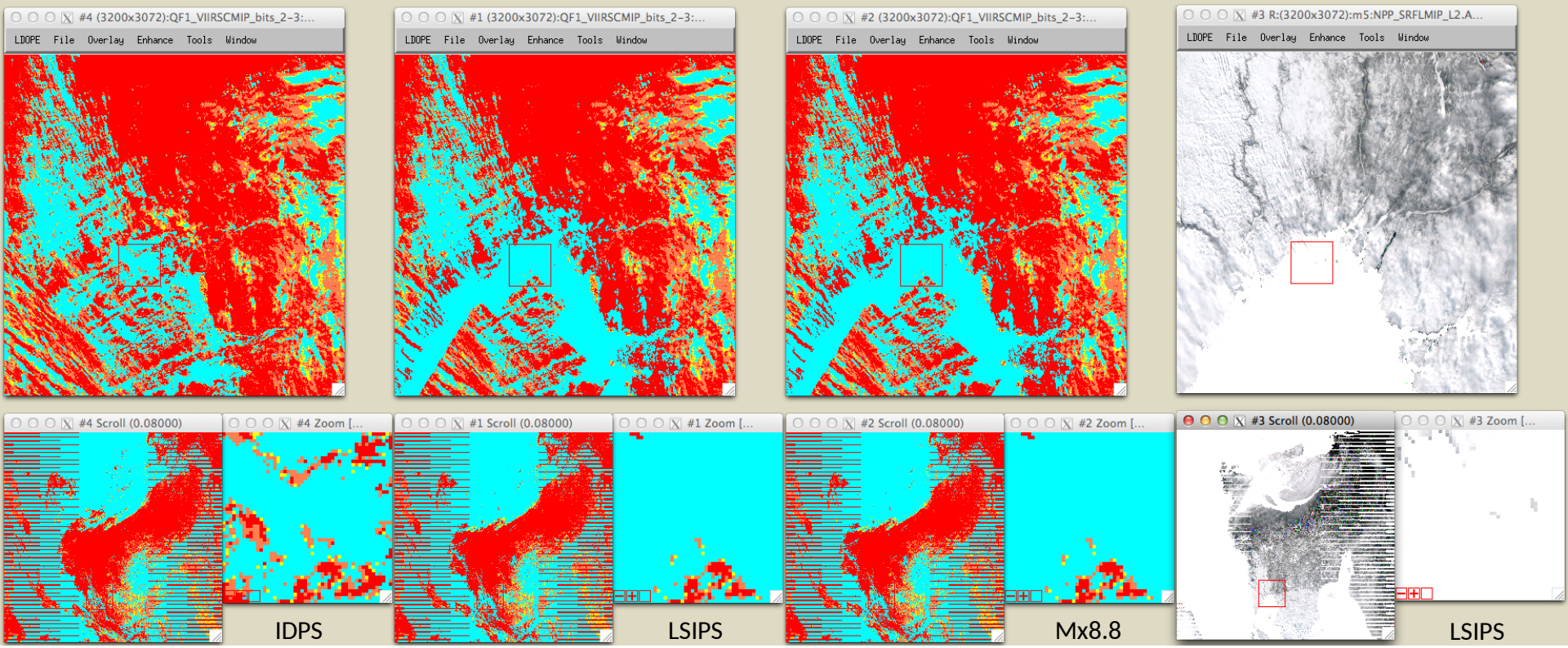
Date Reviewed: 04.29.15

LDOPE

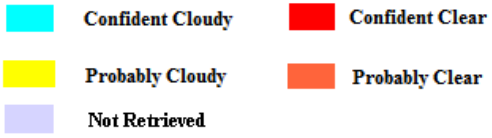
Rerun APU Difference Image: Test AS1146 (Mx8.8) vs AS 3000 (IDPS)



- Rerun of NPP_CMIP_L2, day 2015094 (04/04/15), QF1, R-DIFF (IDPS AS 3000 vs MX8.8 test AS 1146)
- Nominal differences were observed in the APU Cloud Mask when the MX8.8 test archive 1146 was compared with IDPS AS 3000.
- The rerun fix of AS 1146 included corrected Snow-ice input (granulated NISE). This resolved most of the larger significant differences observed in the earlier test review.



- The Cloud Detection Results & Confidence Indicator: Bit 2-3:



- Slight differences observed in comparison of AS 3000 (IDPS) and AS 3001(LSIPS).
- Mx8.8 test AS 1146 is compared to AS3001, these two cloud masks are nearly identical in this granule example.
- When compared to the Surface reflectance, the cloud mask seems to perform consistently between 3000, 3001, and the test AS 1146.